Chapter 2

Digitized Division Technologies

The redesigned division support command (DISCOM) and its organic units will see an emergence of new technologies and CSS enablers that will greatly enhance the ability of logisticians at division and below to execute their work more efficiently and provide situational awareness. This coupled with the paradigm shifts in organizational structures and support concepts, allows the Force XXI DISCOM to provide the required resources to the maneuver commander to meet the OPTEMPO required to defeat the enemy. Figure 2-1 shows the locations of automated systems within the DISCOM. These systems are discussed in this chapter.

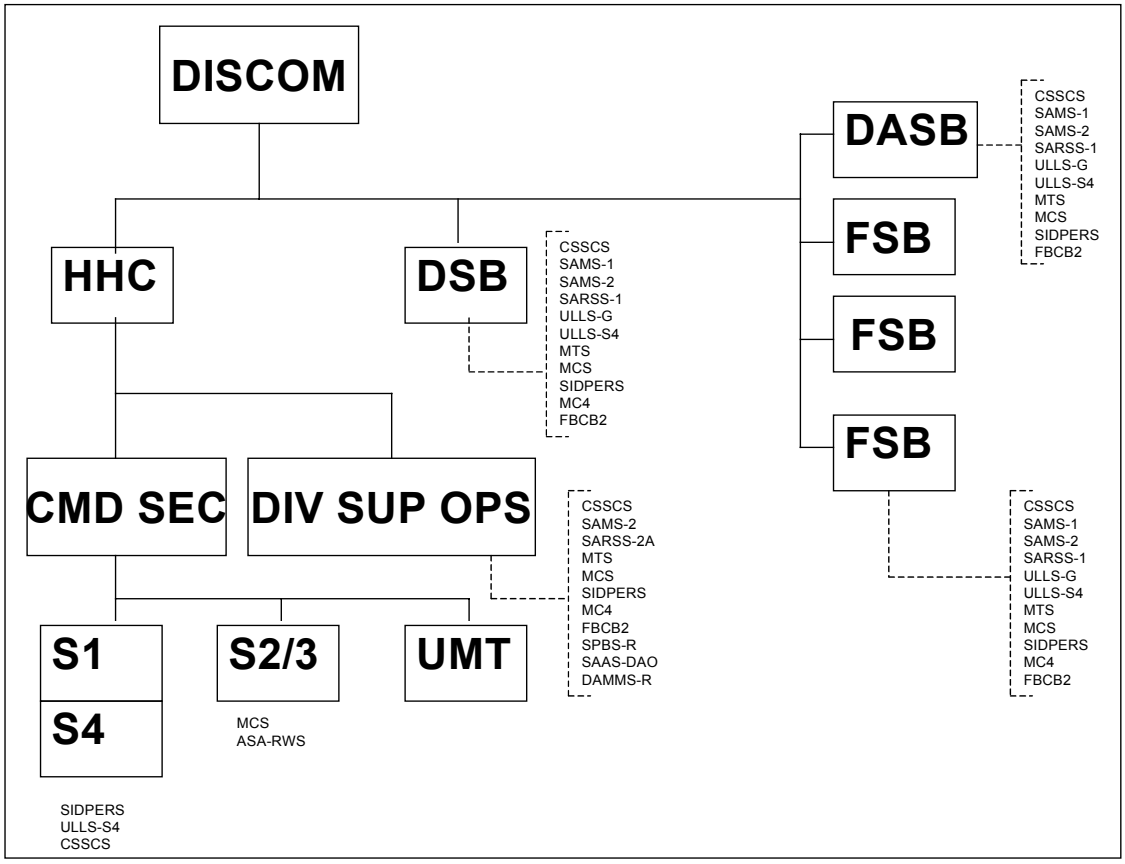


Figure 2-1. DISCOM Automation Architecture

Although the sections in what was previously known as the division materiel management center (DMMC) are now an integral part of the division support operations, the automation used to link the DSB, DASB, and FSBs to the DISCOM, and the DISCOM to the corps, remain resident in the same sections that managed them under the AOE structure. This is particularly true in the case of the STAMIS.

COMBAT SERVICE SUPPORT REDESIGN ENABLERS

2-1. The CSS enablers will assist logisticians by improving efficiency and effectiveness. Discussed below are those enablers that are currently designated to be used by the Force XXI Division.

CONTACT MAINTENANCE TRUCK (CMT)

2-2. The CMT is a self-contained, multi-capable repair system, which will perform on-site organizational and DS level repair for wheeled vehicles and equipment. It has high mobility to maintain continuous support of maneuvering forces. It has enhanced hand and power tools, test measurement and diagnostic equipment (TMDE), welding and cutting equipment, and an air compressor, mounted on a heavy high mobility multipurpose wheeled vehicle (HMMWV) (M1097) vehicle chassis. The CMT will replace older obsolete contact trucks utilizing M880 and commercial utility cargo vehicle (CUCV) chassis. It also meets requirements for both ordnance and engineer on-site repair missions. Specific components include:

- Secure enclosure with easy access to tool cabinets and equipment.
- Highly durable, good quality hand tools.
- Enhanced electric power tools.
- Electrical arc and metal inert gas (MIG) welding and gas (oxyacetylene) brazing and cutting.
- Test and diagnostic equipment (TDE).
- High mobility standard chassis.
- Increased payload for spares, special tools, and individual military gear.

CONTACT TEST SET (CTS)

2-3. The CTS (AN/PSM-80 (V) 2) is a modular tester and electronic information delivery device that can be reconfigured to meet maintenance support requirements of different commodity and items at unit level and above. The CTS, a component of the integrated family of test equipment (IFTE), is a rugged man portable, knowledge based test set used at all levels of maintenance. It identifies LRU problems and augments weapon systems built-in test and built-in test equipment (BIT/BITE). It acts as a platform for electronic technical manuals (ETM), and is an Army standard software down loader. It is one-person portable and is capable of interfacing with standard printers to provide hard copy output. The AN/PSM-80 (V) 2 will contain a digital multi-meter board, a counter/timer board and an internal combustion engine board. It replaces the simplified test equipment/internal combustion engine (STE/ICE) in performing expert diagnostics. In addition, it will provide means to upload and download software and support the J1708 digital bus systems. This system would be located wherever needed; organization, DS, or higher levels of maintenance.

FORWARD REPAIR SYSTEM (FRS)

2-4. The FRS is a PLS flatrack mounted maintenance shop. It is designed to provide field level (unit and direct support)

maintenance to mechanized/armored forces and is transported by a standard PLS vehicle. The FRS capabilities include: 5.5 ton capacity crane for lifting engines/power packs and other major assemblies; oxyacetylene, electric ARC and MIG welding capabilities; pneumatic power and industrial quality hand tools; a 175 PSI air compressor; and a 30KW tactically quiet generator (TQG) power source to provide power for the welding set, crane, electric power tools, and on-board ancillary equipment. The tool configuration is a standardized load unique to the FRS and is based on the heavy combat fleet. It provides storage locations for general mechanics tool kits (GMTK); battle damage assessment & repair (BDAR) kits for the mechanized fleet, and the soldiers' portable on-system repair tool (SPORT). The GMTK, BDAR Kits, and SPORT are not components of the FRS. The FRS provides space to carry basic issue items (BII), authorized list items (ALI), CTA items and crew member's individual clothing and equipment.

2-5. Specific maintenance features are as follows:

- Lift capability needed to replace/repair heavy combat system components, such as power packs.
- Secure enclosure with easy access to tools and on-board equipment.
- Industrial quality tools and equipment to optimize support of heavy systems.
- Full welding and cutting capability.
- Air compressor for tools and utility support.
- Carries the SPORT for diagnostics, ETM and IETM support.
- Workbench area with limited environmental protection.

HEAVY EQUIPMENT RECOVERY COMBAT UTILITY LIFT AND EVACUATION SYSTEM (HERCULES) (M88A2)

2-6. The HERCULES provides the answer to the current recovery problems with the M1 series tank. It is an upgrade to the current M88A1 medium recovery vehicle that provides recovery support to systems up to 70 tons, which are Abrams, and future heavy combat systems, Wolverine, Grizzly, and Crusader. Improvements include an upgraded power train, better armor protection and improved towing, lifting, and winching capabilities. Key system performance improvements include: an upgraded power pack (engine, 750 HP to 1050 HP and an improved transmission), improved final drive, power brakes, and suspension; overlay armor-30mm protection, increase weight from 56 to 70 tons, and 6000 pounds lead auxiliary winch to aid in deployment of the main winch. The HERCULES will operate in the same environment and geographical areas as the systems it supports. This is normally one terrain feature behind supported units, maximizing cover and concealment techniques and will operate during hostile battlefield conditions compounded by darkness, smoke, dust, and adverse weather. The HERCULES will provide safe operation, braking, steering control, and adequate mobility while performing primarily recovery and maintenance operations such as towing an M1 series tank, removing turrets, recovering nosed-in or overturned tanks and tanks mired to various depth in varying soil conditions. Secondary recovery functions include removing/replacing powerpacks, a cutting capability for removal/repair of damaged components, auxiliary power unit for ancillary tools, refuel/defuel pump, and an impact wrench to support the various recovery task and repair actions.

TACTICAL INTERACTIVE GROUND EQUIPMENT REPAIR (TIGER)

2-7. The TIGER provides mechanics expert diagnostic trouble shooting programs and access to ETM/IETMs, standard army maintenance system (SAMS) and databases for float management.

2-8. Tactical interactive ground equipment repair is principally a comprehensive related body of ideas and proposals intended to reform maintenance. Tactical interactive ground equipment repair is intended to furnish the means to diagnose materiel conditions correctly, communicate needs for services and supplies, and track them to the customer, thus reducing repair cycle time. Tactical integrated ground equipment repair includes the following concepts and projects: anticipatory logistics; turbine engine diagnostics (TED)-onboard; driver minder; interactive electronic technical manuals (IETM); pocket unit maintenance aid (PUMA); digital interactive training (DIT).

2-9. Tactical interactive ground equipment repair provides the basic ingredients to establish anticipatory logistics and accurate diagnostics/prognostics. To resolve maintenance deficiencies, TIGER concentrates on such core problems in our logistics systems: lack of communications in contemporary combat service support (CSS) units; fault-diagnosis of weapon systems and other military materiel; identifying, requisitioning, distributing, and applying repair-parts; tactical maintenance processes; the

proficiency and performance of mechanics; understanding customer wants; the burden of preventative maintenance checks and services (PMCS) on mechanics, technicians, and most of all users.

ELECTRONIC TECHNICAL MANUALS (ETM)/INTERACTIVE ELECTRONIC TECHNICAL MANUALS (IETM)

2-10. Electronic technical manuals provide the mechanic compact disc-read only memory CD-ROM access to all maintenance technical manuals via laptop computer. Electronic technical manuals provide technical information and directions to maintainers and technicians. However, they do not automatically diagnose inoperable or malfunctioning systems.

2-11. On-board IETMs have all the capabilities of IETMs, with the additional advantages of being integrated into the weapon system. This enables dynamic diagnosis, and the ability to communicate critical logistics information over the weapon system's digital radio.

2-12. Interactive electronic technical manuals diagnose and direct how to fix complicated, malfunctioning, or inoperable equipment. Interactive electronic technical manuals troubleshoot specific problems that inhibit combat performance of critical weapon systems, or high-maintenance cost drivers. Interactive electronic technical manuals have the capabilities to isolate the fault, determine the required repair part, and provide maintainers the instructions on the repair of the system. Interactive electronic technical manuals have the ability to communicate and interact with weapon systems, and with the supporting management information system (GCSS-Army). The IETM initiates the repair process. Normally, this occurs at the location of the inoperable equipment. Interactive electronic technical manuals comprehensively diagnose those field (organization and direct support level) maintenance tasks, identifies the parts required to repair the equipment, and forwards those parts requirements to the maintenance STAMIS, ULLS-G and SAMS-2 currently, and GCSS-Army as it replaces existing STAMIS.

2-13. A comprehensive weapon systems IETM or onboard-IETM does not exist. The ETM, the IETM, and the onboard-IETM are integrated components, or software objects that perform diagnostic functions. A combination of the IETMs, onboard-IETMs, and ETMs comprise a weapon system's total technical documentation.

2-14. To employ IETMs effectively, the Army requires an interface device, the PUMA. This permits the maintainer to communicate seamlessly with the weapon system, yet connect with customers, and other CSS elements over FBCB2, the global combat support system-army (GCSS-Army), or other available communications systems. Onboard IETMs are accessed over the weapon system's existing computer and communications systems.

MOVEMENT TRACKING SYSTEM (MTS)

2-15. The movement tracking system (MTS) is a stand-alone, satellite-based communication system that provides near-real-time in-transit visibility (ITV) of distribution assets. The MTS provides ITV through the use of vehicular mounted personal computer-based hardware packages with mapping software and commercial satellite assets. The MTS combines global positioning system (GPS) and satellite communication technologies that provide automatically updated position location and two-way digitized message capability between mobile units and control stations.

2-16. The MTS is employed at all levels of the distribution management system. In the corps and division, MTS control stations are located in distribution management center (DMC) support operations sections, movement control/mode operator headquarters elements, support battalion support operations sections within the division, and supply support activities (SSAs) at all echelons. The MTS control stations located at the maneuver brigade S4 and the FSB support operations section, transportation cell provide positive inbound clearance, outbound coordination of transportation assets and supplies, and maintain ITV.

2-17. The MTS provides CSS commanders with near-real-time transportation asset location, movement data, and situational awareness. These capabilities enable distribution managers to redirect (divert) supplies/assets to higher priority needs, avoid identified hazards, inform vehicle operators of changes in unit locations, and improves the overall effectiveness and efficiency of the distribution management system. The MTS mobile units, palm-sized laptop computers, are mounted on common user land transportation (CULT) vehicles, selected C2 and combat support (CS) vehicles, and CSS tactical wheeled vehicles. In addition, a mobile MTS unit will be available for use by host nation and other foreign nations contributing to a combined operation, or in leased, contracted and other vehicles that may be used in the distribution role but would not normally be equipped with MTS.

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV)

2-18. The family of medium tactical vehicles (FMTV) consists of two weight classes of vehicles and trailers; 2-½-ton light medium tactical vehicles (LMTV) and 5-ton medium tactical vehicles (MTV) each with trailers. Each family of vehicles shares common design and components to the maximum extent of commonality feasible. The family of vehicles currently features 80% commonality of parts, state-of-the-art systems, and easy to access controls.

2-19. The FMTV overcomes numerous deficiencies in tactical/strategic deployability, mobility, and ammunition/general resupply. It has the central tire inflation system (CTIS), on-board crane availability option, and is transportable on C-5, C-17, C-141, and C-130 aircraft. The FMTV replace existing 2 ½-ton and 5-ton trucks on a one-for-one basis. The FMTV are required to maintain the increased pace of logistical operations and to equal a dominant maneuver OPTEMPO. Battlefield distribution significantly alters the speed at which we execute service support and FMTVs are a key factor in reinforcing the existing infrastructure within Force XXI operations.

PALLETIZED LOAD SYSTEM (PLS)

2-20. The palletized load system is a 16 ½-ton tactical truck, trailer, and interchangeable de-mountable cargo flatrack combination with built-in self-loading/unloading capability that hauls all classes of supply (minus water and Class III bulk). The PLS has a total system hauling capacity of 33 tons, a 225-mile range, 50 MPH

maximum speed, central tire inflation system (CTIS), and is C-5 and C-17 air transportable. When equipped with the container handling unit (CHU), the PLS can also provide increased container movement flexibility within the division rear area.

2-21. The PLS improves cargo handling by minimizing materiel handling requirements on an expanded battlefield and provides enhanced mobility to fielded units within the Force XXI division. These improvements are critical as they provide efficient and effective movement of supplies through a distribution-based logistics pipeline. The PLS is a key distribution platform employed by field artillery, ordnance, and transportation units. The PLS is the DISCOM's transportation operations workhorse under the Force XXI CSS redesign. The DISCOM commander can logistically weight the division's fight with the PLS employed by the transportation motor transport company (TMTC) of the DSB.

2-22. The role of the TMTC is to provide truck transportation for the distribution of supplies in the division's battlespace and assist division and corps elements requiring supplemental transportation. Specific PLS missions include, but are not limited to:

- Lateral redistribution of supplies in the brigade areas.
- Lateral redistribution of supplies between divisions.
- Relocation of ammunition supply/transfer points.
- Support tactical unit relocation and displacement of other divisional units.

HEMTT-LOAD HANDLING SYSTEM (LHS)

2-23. The heavy expandable mobility tactical truck (HEMTT) - load-handling system (LHS) is a standard M977 or M985 HEMTT chassis equipped with a PLS-variant load handling system. The LHS is designed for loading/unloading de-mountable cargo beds (flatracks) and 8'x 8'x 20' international standardization organization (ISO) containers/shelters on flatracks. These flatracks are interchangeable with all fielded PLS flatracks. This system

introduces the capability to handle flatracks at the maneuver brigade level.

2-24. The LHS is employed by the FSB's HDC and FSC in the supply & transportation (S&T) distribution sections. Employment of the LHS improves system performance, reduces load and unload times, and increases vehicle availability for CSS units operating in the Force XXI brigade area. The LHS has the capability of transporting an 11-ton payload on the truck-mounted flatrack while towing an additional 11-ton flatrack load with the M1076 PLS trailer (the trailer is issue with LHS only to the FSB HDC). The LHS maintains the capability to transport all classes of supply (minus water and Class III(B)) in a tactical environment.

2-25. The LHS improves cargo handling by reducing container/materiel handling equipment requirements forward on the battlefield. It also enhances the mobility of CSS units by allowing supplies and equipment to remain uploaded for immediate displacement if required. Additionally, the LHS extends distribution throughput capability and enhances velocity through flatrack exchange with PLS. The use of flatrack distribution and exchange forward in the brigade area increases the supported maneuver commander's tactical flexibility.

CONTAINER HANDLING UNIT (CHU)

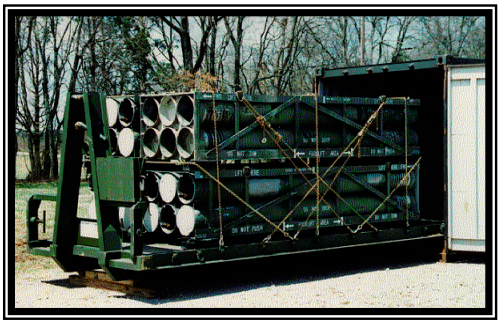
2-26. The container-handling unit (CHU) is a configuration of lifting, sliding, stowing, and locking apparatus configured onto to the palletized load system (PLS) that enables it to self-load/unload 20-foot (or equivalent) containers. With this CHU configuration, the PLS interfaces with ISO-conforming containers without the use of a flatrack. The CHU has the ability to adjust to container height variants and retains full flatrack interoperability with minimal reconfiguration required.

2-27. The CHU is employed by the tactical truck platoon, TMTC of the DSB and at ammunition transfer points (ATPs) operated by the FSB, HDC. This employment increases the division's capability to rapidly transport containerized supplies forward on the battlefield. The PLS/CHU has the capability of transporting a 16 ½-ton payload on the truck while towing an additional 16 ½-ton flatrack load with the M1076 PLS trailer. The PLS/CHU configuration (with trailer)

maintains the capability to transport 33-tons of supplies in a tactical environment.

2-28. The CHU provides a container handling ability not previously organic to the division and reduces container/material handling equipment requirements, such as rough terrain container handlers. This additional container handling ability enhances distribution throughput capability, velocity, and immediate ATP displacement. The CHU provides CSS commanders with container handling capability forward in the division and brigade areas and increases the supported maneuver commander's tactical flexibility.

CONTAINERIZED ROLL-IN / ROLL-OUT PLATFORM, M3 (CROP)



2-29. The containerized roll-in/roll-out platform (CROP) is the flatrack of the future. It is a PLS/LHS flatrack that will eventually replace the M1077 flatracks currently fielded with the PLS and trailers. This flatrack is configured to fit snuggly into a 20 foot ISO dry cargo container that has an internal door opening width of at least 92 inches and an internal length of 231 inches. It reduces transportation-shipping times and eliminates blocking and bracing efforts at origin and destination when shipped in a container. The CROP can be loaded with miscellaneous unit equipment and all classes of supply, to include ammunition. The CROP has an inward folding A-frame that allows these flatracks to be stacked 2-6 high for retrograding.

2-30. The CROP is a cargo carrying platform (or flatrack) suitable for repeated use throughout the PLS and LHS mission profiles. This improved-design flatrack is a critical enhancement to transportation operations, a key enabling system to battlefield distribution, and the cornerstone to sustainment supply velocity in the distribution pipeline under Force XXI CSS doctrine.

2-31. The CROP offers strategic, operational, and tactical applications that serve an increased pace of logistics operations and significantly alters the speed at which we provide combat service support to the warfighters.

RADIO FREQUENCY - AUTOMATIC IDENTIFICATION TECHNOLOGY (RF-AIT)

2-32. Radio frequency-automatic identification technology (RF-AIT) is an assemblage of commercial off the shelf equipment built around a nucleus of radio frequency tags that possess embedded data of container contents, shipment data, and vehicle identification. The tags are placed on containers or vehicles at the source (such as a shipping depot or supply point) and can then be read by fixed interrogators placed at various in transit points, such as ports of embarkation (POE), ports of debarkation (POD), installations and at the eventual destination. Data input for radio frequency identification tags (RFID) will be generated at the data source supply activity. For sustainment shipments flowing from echelons above brigade (EAB), supply locations to the lowest level supply support activity (SSA), supply item data will be entered through a fixed burn station into the RFID tag. For remote EAB supply locations, supply item data may be entered by the use of a hand held interrogator. There are three sections within the data fields of a single tag that provide specific information. The lead section, or section 1 of the RF tag holds the transportation control and movement document (TCMD) header data. This section contains the primary transportation control number (TCN), major characteristics of the cargo (cube/weight), the primary consignor, and consignee. Section 2 contains a detailed item description to include subordinate consignees and document number information. Section 3 is a free text area that allows the source to input any specific disposition and/or special handling instructions for any line item of the shipment.

2-33. Radio frequency identification tags are separated into three data sections that provide specific information. The lead section, or license plate data, provides specific information about the shipment, such as, port of entry, port of departure, required delivery date (RDD), consignee, consignor, hazardous material (HAZMAT), number of commodity records and the number of transportation control and movement document (TCMD, DD Form 1348) records. The second section, or the TCMD section holds the TCMD header data. This section contains the primary transportation control number (TCN), major characteristics of the cargo (cube/weight), the primary consignor, and consignee. Section 3, or the commodity section contains detailed 1348 type detail. This section includes a database with NSN, document number, unit of issue routing identifier code.

2-34. Radio frequency identification tags will be affixed to the cargo by means of nylon serrated electrical ties. This method ensures the tags remain with the cargo until it reaches the point of delivery or the lowest level SSA.

2-35. The receiving SSA, through the use of a hand held interrogator, gains quick information as to the contents of each shipment and aids in the rapid processing of supplies into SARSS and subsequent delivery to the requesting unit.

Retrograde

2-36. Radio frequency identification tags recovered from previous shipments can be used to retrograde cargo from the user to EAB supporting supply activities. The SSA will take steps to ensure the original shipment data on the tag is deleted. This measure prevents confusion of the old original shipment data and new retrograde data.

2-37. Upon picking up the cargo, the FSC or HDC, informs the battalion support operations section. The support operations office of the FSB will then associate that particular RFID tag with the corresponding vehicle equipped with the MTS or FBCB2. The support operations section passes this information via digital non-secure voice terminal or telephone (DNVT) or tactical fax, which provides information to the EAB receiving supply activity.

Return of Unused RF Tags

2-38. Should recovered RFID tags exceed the number of retrograde shipments, arrangements should be made to return the tags to the next higher supporting SSA. Key points to remember when returning RFID tags are to: delete the original shipment information and flip the battery within the tag. Units, through retrograde operations, or direct returns, should return tags to the system within 72 hours of receipt.

STANDARD ARMY MANAGEMENT INFORMATION SYSTEMS (STAMIS)

2-39. The CSS community has developed functional information management systems that increase the productivity of the individual soldier and effectiveness of the unit. These CSS STAMIS will provide the logistics infrastructure required for any military ground operation. The technical goal is to establish a seamless and interoperable network. The network involves the integration and communication software used by all STAMIS systems. Components of the system primarily include unit level logistics system (ULLS)-ground (G),ULLS air (A), ULLS-S4, standard Army retail supply system (SARSS), and standard Army maintenance system (SAMS). In addition to the above-mentioned systems, the STAMIS interim transmission equipment consists of RF modems, mobile subscriber equipment (MSE), and tactical terminal adapters (TTA). The STAMIS communication software utilizes the blocked asynchronous transmission (BLAST) package. A brief description of the various STAMIS listed in Figure 2-1, as part of the DISCOM automation architecture, is discussed in this section.

TRANSPORTATION STAMIS

Department of the Army Movement Management System Redesigned (DAMMS-R)

2-40. Department of the Army movement management system redesigned (DAMMS-R) is an automated system designed to provide capabilities associated with transportation movement

scheduling and management as well as transportation asset management within a theater of operations. The DAMMS-R interfaces with the Military Traffic Management Command's worldwide port systems (WPS) and the Air Mobility Command's global air transportation execution system (GATES). These interfaces aid in clearing the ports of personnel, equipment, and cargo inbound to a theater of operations. The DAMMS-R is used exclusively in the OCONUS environment, and tracks DOD cargo from the port of debarkation (POD) to final destination.

2-41. The DAMMS-R operates in the DISCOM support operation's movement control office (MCO) and in the division transportation office (DTO). The DAMMS-R functionality will be combined with other installation transportation office (ITO) unit deployment planning/executing systems and result in a single, easily deployable transportation management system, the transportation coordinator's-automated information management system II (TC-AIMS II).

Transportation Coordinator's - Automated Command and Control Information System (TC-ACCIS)

2-42. Transportation coordinator's - automated command and control information system (TC-ACCIS) is the Army's automated unit deployment planning and execution system that accomplishes transportation functions for ITO/traffic management offices. It generates unit movement data, air load plans, air cargo manifests, rail load plans, bills of lading, and bar-code labels for shipment.

2-43. The TC-ACCIS allows unit movement officers (UMOs) to create, update, or modify unit deployment data for peacetime, mobilization and deployment/redeployment operations. Like DAMMS-R, the TC-ACCIS system will ultimately be replaced by TC-AIMS II.

Transportation Coordinator's–Automated Information for Movements System II (TC-AIMS II)

2-44. Transportation Coordinator's Automated Information for Movements System II (TC-AIMS II) is a Joint Services automated information system designed to function as a universal tool for the unit movements officer, ITO, and theater movement control/mode operations.

2-45. The TC-AIMS II is a system designed for unit movement officers, planners, movement controllers, and transportation operators at all levels. It will be employed from installation transportation offices (ITOs) at the Army's power projection platforms, other TC-ACCIS locations, and from theater level commands to battalion and separate company levels.

2-46. The TC-AIMS II will provide transportation functions such as plan convoys; request convoy clearances, conduct load planning,

and manage mode operations. It will also support daily transportation operations and provide enhancements to the deployment process by building automated unit equipment lists and deployment equipment lists. The TC-AIMS II supports planning, executing, managing, and reporting movement-related deployment, sustainment, and redeployment activities. It will facilitate the movement of personnel, equipment, and supplies and provide visibility data of those forces from factory to foxhole.

2-47. Automatic identification technology (AIT) hardware and software capabilities are integrated into TC-AIMS II so in-transit visibility (ITV) can be established. These AIT enablers will allow TC-AIMS II users to create RFID tags, which can be affixed/mounted on cargo and equipment. When the tags pass by fixed or mobile RFID tag readers/interrogators, the tags will be interrogated and the tag data will be sent to appropriate CONUS/Regional ITV Servers which in-turn will send the interrogated tag data to the global transportation network (GTN). The GTN in-turn updates the global command and control system (GCCS). The TC-AIMS II will ultimately provide the theater of operations with a joint transportation system capability supporting the commander-in-chief with visibility of transportation assets in the distribution pipeline. The TC-AIMS II will be the enabler for force projection supporting Force XXI operations and battlefield distribution.

MAINTENANCE STAMIS

Standard Army Maintenance System (SAMS)

2-48. **SAMS-1**. Standard Army maintenance system-1 (SAMS-1) is a maintenance management system, which automates shop operations within the FSC MCS, BSC MCS, AMC MCS, and ASMC MCS. It provides shop management control of workload, manpower, and supply. It also has the capability to automatically produce work orders, requisition repair parts, manage shop and bench stock, and provide detailed labor costs related to a specific work order. The FSC MCS, BSC MCS, AMC MCS and ASMC MCS pass the SAMS-1 information to the SAMS-2 located in the respective support operations section. The FSB, DASB and DSB support operations sections pass the information to the SAMS-2 located in the division support operations section. The SAMS-1 interfaces to ULLS-A, ULLS-G, SAMS-2, SAMS-I/TDA, SARSS-1, and SARSS-GW.

2-49. **SAMS-2**. Provides mid-level maintenance management and readiness visibility at the support operations level through selected maintenance, equipment readiness, and equipment performance reports. It produces management reports related to work orders, shop capabilities, production, backlog, manpower and parts costs. It also provides completed work order data and readiness data to the logistics support activity (LOGSA) for equipment performance

and other analysis. The SAMS-2 interfaces to ULLS-A, ULLS-G, SAMS-1, SAMS-I/TDA, LOGSA, and CSSCS.

SUPPLY STAMIS

Unit Level Logistics System (ULLS)

2-50. **ULLS-Ground (G)**. The ULLS-G is located at any unit that has an organizational or tactical field maintenance facility, and is designed to be operated by unit level personnel. It automates the entire range of supply functions associated with the prescribed load list (PLL), vehicle dispatching, and the army maintenance management system (TAMMS) function at the motor pool. The ULLS-G interfaces with SARSS-1, SARSS-GW, ULLS-S4, and SAMS-1.

2-51. **ULLS-Air (A)**. The ULLS-A is located in all aviation units. It performs those functions for aviation the ULLS-G performs for ground units. It will automate the production control, quality control, and tech supply (Class IX) functions at the aviation unit maintenance (AVUM). The ULLS-A interfaces with SARSS-1, SARSS-GW, ULLS-S4, and SAMS-1.

2-52. **ULLS-Battalion (S4)**. The ULLS-S4 is located at all companies, battalion S4s, and brigade S4s. It provides hand receipt accountability for property, requests supplies, and requests transportation. The ULLS-S4 interfaces with SARSS-1, standard property book system-revised (SPBS-R), standard army ammunition system-modified (SASS-MOD), SARSS-GW, and CSSCS.

Standard Army Retail Supply System (SARSS)

2-53. **SARSS-1**. The SARSS-1 is an interactive, menu-driven, automated supply accounting system providing asset visibility. It automates supply support functions of the DSB SSA, DASB SSA, FSB SSA and FSC supply platoons. It processes supply requests, issues, receipts, and tracks storage of items. It interfaces with the ULLS-S4, SAMS-1, SPBS-R, CSSCS, ULLS-S4, ULLS-A, ULLS-G, and SARSS-2A.

2-54. **SARSS-2A**. The SARSS-2A provides intermediate management of the supply system at the DISCOM level. It provides reparables management and tracks excesses. It also provides referrals by conducting lateral searches among SARSS-1 locations within the division. It interfaces with the SARSS-2A(C) located at the corps material management center (CMMC), which tracks demand and document history, financial record keeping, and conducts lateral searches at the corps level.

2-55. **SARSS-2B**. The SARSS-2B performs non-time sensitive supply management functions for catalog update, document history, demand analysis, and financial interface. The SARSS-2B is employed at the COSCOM MMC, TAACOM, TAMMC, TDA/installation, USARC, and the National Guard USP & FO.

2-56. **SARSS-Gateway**. The SARSS-Gateway is designed to make optimum use of automation and communication techniques by integrating the wholesale and retail supply systems into a single seamless supply system. The SARSS-Gateway provides for the same day processing of requests for issue; visibility of all assets within an area; status to users and lateral distribution of assets. This system includes a Gateway computer system at St. Louis, MO, and all units operating a logistics STAMIS. The SARSS-Gateway communications (SARSS GATEWAYCOMM_BLAST) links the existing five STAMIS (ULLS, DS4, SAMS-1, SAILS and SARSS-O) to the SARSS-Gateway using the defense data network (DDN) as the principal communications network.

Standard Property Book System- Revised (SPBS-R)

2-57. The SPBS-R is an interactive, menu driven property accountability system. The system accomplishes the functions of property accountability required by Army regulation (AR) 710-2, department of the Army pamphlet (DA PAM) 710-2-1, and all other pertinent and applicable regulations and guidelines. It operates in both centralized and decentralized mode, and provides asset visibility wherever the requirement exists. The SPBS-R interfaces with ULLS-S4, SARSS-1, tactical unit financial management system (TUFMIS), and CSSCS.

Standard Army Ammunition System-Modified (SAAS-MOD)

2-58. The SAAS-MOD is an automated ammunition system, which consolidates the following, three levels of operations into a single software baseline: theater support command materiel management center (TSC MMC/CMMC), ammunition supply point, and the division ammunition office (DAO). The SAAS-MOD is designed to manage conventional ammunition, guided missiles and large rockets, and related crating and packing materials. The SAAS-MOD provides formal stock record accountability, asset visibility, intransit visibility, management control, and automatic-reporting capabilities for ammunition stored at the retail level. It also supports basic load, war reserve, and operational stock management. It supports Class V conventional ammunition missions for units ranging in size from a brigade-size task force to theater. Any element, except an ammunition transfer point (ATP), when deployed independently, can perform the same functions as a TSC MMC or a DS/general support (GS) ordnance group. Within the division, a SAAS computer is located at the Class V branch of the general supply office, division support operations section. The SAAS-MOD interfaces with the following systems by either disk-to-disk or modem-to-modem transfer:

- SAAS.
- Commodity command standard system (CCSS).
- LOGSA.
- Worldwide ammunition reporting system (WARS).

- SPBS-R.
- DAMMS.
- ULLS-S4.
- CSSCS.

MEDICAL STAMIS

Medical Communication for Casualty Care (MC4)

2-59. Force XXI digitized division and brigade medical units and elements will employ the medical communications for combat casualty care (MC4) medical information system, when fielded. The MC4 system is a theater, automated CHS system which will receive, store, process, transmit, and report C2, medical surveillance, patient movement/tracking, medical treatment, medical situational understanding, and CHL data across all echelons of care. The MC4 system will begins with the individual soldier and continues throughout the health care continuum. The MC4 system will consist of three basic components: software, hardware, and telecommunications capabilities.

- Software: The joint theater medical information program (TMIP) will provide common medical software. The software provides an integrated medical information capability that will support all levels of care in a theater of operation with links to the sustaining base. Medical capabilities provided by the software will address medical C2 (including medical capability assessment, sustainability analysis, and medical intelligence); CHL (including blood product management and medical equipment maintenance management); patient evacuation; medical surveillance, and health care delivery. The MC4 system supports Army-unique requirements and any software needed to interface with Army information systems such as CSSCS, global command and control system-Army (GCSS-A), FBCB2, warrior programs, and the movement tracking system (MTS).
- Hardware: The hardware will consist of commercial off the shelf (COTS) automation equipment supporting the above software capabilities. Examples include, but are not limited to, computers, printers, and networking devices.
- Communications: The MC4 system will rely on current and proposed Army solutions for tactical, operational, and strategic telecommunications systems to transmit and receive digitized medical information throughout the theater and back to the sustaining base. Telecommunications at brigade and below will be accomplished through the tactical internet; above brigade level, telecommunications will be accomplished

through the WIN architecture. At end-state, the MC4 system users will exchange data electronically via the WIN architecture.

- Echelon I combat health support. Echelon 1 CHS represents routine or emergency medical care provided by a variety of personnel. The initial first aid for a casualty can be provided by either self-aid, buddy aid or combat lifesaver. This first aid is followed by medical treatment from a trauma specialist. The trauma specialist provides emergency medical treatment and request medical evacuation of the patient to the battalion aid station (BAS). The BAS provides essential emergency care, advanced trauma management (ATM), and prepares the patient for medical evacuation back to the FSMC. All medical treatment elements in the division provide area medical support to those units without organic medical assets, that operate within the division and brigade AOs.
- Echelon II combat health support. Echelon II CHS duplicates Echelon I and expands services available by adding dental, laboratory, x-ray, and patient -holding capabilities. Emergency care and ATM including beginning resuscitation procedures are continued. Preventive medicine and mental health section are also located in Echelon II medical treatment facilities (MTFs) The MC4 system will provide the same augmentation to the C2, treatment, medical evacuation, and CHL elements that were provided at Echelon I.
- Through the use of the medical detachment telemedicine, Echelon II medical companies will have the ability to digitized medical data (x-ray, pictures) and transmits it to clinical consultants at EAD.
- Combat health logistics. The trauma specialist will utilize FBCB2 to request medical supplies from the BAS. This request will be a built-in report on the FBCB2 system. At the BAS, requests for medical supplies will be made utilizing the MC4 system. This automation will not only speed the resupply process, but will also allow the combat commander to maintain visibility of his unit's MEDLOG status, either through FBCB2 or throughout he MC4's link to CSSCS through GCSS-A.
- The FSMCs are responsible for Class VIII resupply for brigade medical elements , see Class VIII in chapter 8.
- The medical material management branch (MMMB) at the division support operations will be the Class VIII commodity manager. Using the same automated tools as the other commodity managers, the MMMB will make arrangements to fill the request through the battlefield distribution system. The MC4 system using TMIP, through its interface with GCSS-A, will automate linkage of Class VIII to the transportation system. The management of complex medical sets and Class VIII material will be automated.

GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-ARMY)

2-60. In the future, GCSS-Army will be the Army's automation information system to modernize and integrate the capabilities of existing logistics STAMIS. Those capabilities to be integrated will include supply, property, ammunition, and maintenance functions (less medical) with significant enhancements. The principal logistics STAMIS to be functionally integrated include the ULLS, SARSS, SPBS-R, SAAS-MOD, and the SAMS. The GCSS-Army modules include:

- A supply/property module that provides situational awareness (SA) and integrates supply operations and property accountability in all units.
- A modernized maintenance module that integrates maintenance operations (such as ground, aviation, and water equipment) at all levels of maintenance.
- A modernized ammunition module that integrates Class V management and operations.
- A modernized supply support activity module that integrates the supply management and operations at supply support activities and storage sites.
- A modernized and integrated materiel management module that integrates supply, property, ammunition, and maintenance management in all materiel management organizations.
- A management module that integrates information from multifunctional CSS data sources and allows for data exchange with other GCSS-Army modules and external automation information systems.
- The GCSS-Army will improve CSS information management by eliminating duplicative information systems, improving the sharing of data, and leveraging advances in advanced information technology. It will provide the ability to support joint operations with sister services as well as provide support to our allies. The GCSS-Army will have a link into the command and control systems through CSSCS and GCSS-Army.

COMBAT SERVICE SUPPORT FUNCTIONS ON FBCB2

2-61. The FBCB2 is a hardware/software suite that digitizes C2 at brigade level and below. The FBCB2 concept provides a seamless battle command capability for performance of missions throughout the operational continuum at the tactical level. The FBCB2 is the implementation of information age technology to provide increased battlefield operational capabilities.

2-62. The system, positioned on specified platforms, will perform combat, combat support (CS), and CSS functions for the planning and execution of operations. The FBCB2 represents a major paradigm shift for the CSS community. For the first time, the CSS organizations are digitally linked to the platforms and organizations

that they support. The FBCB2 provides a common battlespace picture enabling CSS providers to maintain the OPTEMPO set by maneuver commanders.

CSS FUNCTIONS

2-63. Combat service support functionality within FBCB2 gives the combatant a common-relevant-picture of the current CSS situation at his/her echelon of command and at subordinate levels. Additionally, it provides the personnel and logistics leaders CSS situational their battlespace. It also provides enhanced capability to synchronize support to customer units. The CSS functionality on FBCB2 includes the following: logistics situational reports (LOGSITREP), personnel situation report (PERSITREP), supply point and field services status report, command tracked item list update message (CTIL/BRIL), a task management suite which includes: logistics call for support (CFS), logistics task orders (LTO), logistics task synchronization and logistics task management. Additional FBCB2 CSS reports include: medical unit situation report, mortuary affairs report, logistical and tactical situational awareness. Currently, FBCB2 permits information to be entered using free text, such as comments and other pertinent CSS information. Ideally, automated systems should be designed to limit free text input. In these cases, the user of the system should understand that the information cannot be automatically manipulated or rolled-up by higher headquarters.

LOGISTICAL SITUATION REPORTS (LOGSITREP)

2-64. The LOGSITREP provides input for logistical status for all classes of supply as determined by the CTIL, for example, Class I, II, III(P), III(B), IV, V, VII, and IX. The CTIL items are selected from the CSSCS BRIL and passed through each echelon of command using the CTIL/BRIL update message and posted to each FBCB2 platform. Platforms are only required to report CTIL items authorized and available on-hand. The LOGSITREP primarily flows through the noncommissioned officer (NCO) chain of command to the battalion S4 and the maneuver brigade S4, with information copies to the FSB support operations section. All reports will follow the chain of command as specified in the unit task organization (UTO). As each unit's report is submitted to the next higher echelon of command, information copies are sent to key personnel. For survivability of the reporting process, key personnel are identified to replace the primary roll-up point duties should the primary roll-up point become non-operational. At brigade level, the maneuver brigade S4 submits company level roll-ups to CSSCS. See Figure 2-2. The CSSCS will be fielded to the maneuver battalion level in the future.

2-65. All recipients of the LOGSITREP (action or information message) have the ability to look one level of command down. This gives that user the ability to see the report submitted at that

level for each class of supply and any comments that were made. Comments made with the LOGSITREP cannot be rolled-up. Any comments necessary for further processing up the reporting chain must be reentered in the next report.

2-66. The purpose of the LOGSITREP is to provide the unit commanders and key personnel visibility of the latest logistics status of their unit. A secondary purpose of this report is to provide the CSS unit visibility of a unit's logistics status to better anticipate their logistics requirements. Optimally, the user will not have to request resupply of commodities reported through this report. This is because the CSS unit is aware of their requirements and can begin the necessary CSS action prior to the unit needing to ask for it.

LOGISTICS CALL FOR SUPPORT

2-67. The purpose of this message is to request immediate CSS support. Any platform with an FBCB2 can request CSS support through the CFS message function. The CFS is a templated message and may be sent directly to the supporting logistics activity, but should be sent to the company first sergeant (1SG). This enables immediate support action on the battlefield, a combat multiplier. Any FBCB2 can send or receive a CFS message. The LOGSITREP reports on hand quantities of classes of supply. However, in the event that the support requirement was not or could not be anticipated, the company may specifically request support through this function.

2-68. The CFS is entered as a templated message and is sent, per unit standard operating procedure (SOP), to the supporting logistics organization that will provide the service or support. The FBCB2 system hosts six categories of CFS requests; maintenance, transportation, supply, medical, religious and others. Supply Actions include, Class I, III, IV, IX, laundry and bath, and mortuary affairs; Transportation Actions, pick up, deliver, and information; Maintenance Actions, repair, recover, services, and information; Medical Actions, evacuations, medic, Class VIII, and information; Religious Actions, worship, pastoral care, PW/refugee support, funeral services, memorial services, and information; Other, request not covered in the other 5 categories, sent in free text mode.

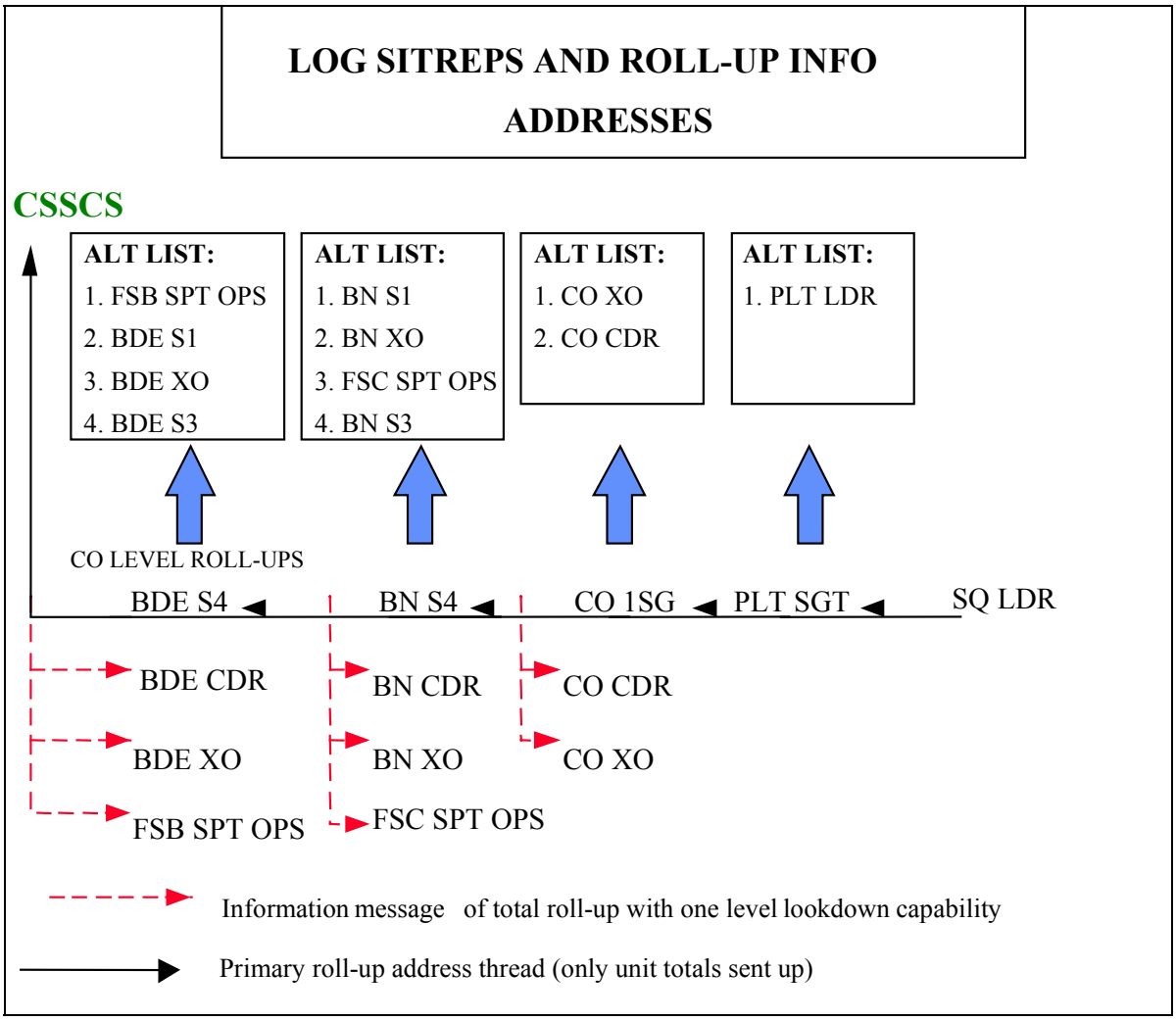


Figure 2-2. LOGSITREP Digital Report Flow

LOGISTICS TASK ORDER

2-69. Once the appropriate CSS activity receives the CFS, the CSS manager identifies the most appropriate CSS unit of action to execute the mission. The CSS manager (tasking authority) sends a LTO to the unit of action. This message is the same template as the CFS message; therefore, the requesting unit and its location are specified in the order. Once the CSS resource receives the message, the FBCB2 will prompt him to return an acknowledgment message (ACK) stating whether he can, can't, or already has executed the mission (WILCO, CANTCO, HAVECO). If the resource replies with a WILCO, he will also be prompted to send an acknowledgment message of IDLE or ACTIVE. This action specifies whether the resource is actively executing the mission or is working on another mission. Once the acknowledgments have been sent, the resource will conduct synchronization with the requesting unit by sending him a free text message stating that he

is on the way, will be there, or at a rendezvous point by a specified time, what he understands the mission to be, etc.

PERSONNEL SITUATIONAL REPORT

2-70. The FBCB2 transmits personnel strength information through the PERSITREP. The PERSITREP is a CSS report submitted from platform level through the command hierarchy to brigade headquarters (HQ) level. FBCB2 users at platform level submit duty status changes through their 1SGs. The 1SG forwards these changes simultaneously to the battalion and brigade S1. The 1SG can also initiate a duty status change. The S1s update the duty status changes from FBCB2. The personnel functionality will be more robust in future versions of the CSSCS by giving social security number level of detail.

2-71. The PERSITREP provides commanders digitized updates to personnel status. The PERSITREP also provides changes to the deployed personnel database. When soldiers deploy, the brigade S1 manifests every deploying soldier. The S1 builds the deployed personnel database through the manifest process. This deployed database is the baseline of personnel deployed. The PERSITREP provides information to change the duty status of the deployed personnel. These changes update the deployed database. These updates give the S1 the capability to retrieve data that they previously required subordinate units to send through recurring reports.

2-72. The PERSITREP follows the NCO support chain. The 1SG receives copies of all reports as they are distributed to the battalion S1 and the brigade S1. All reports will follow the chain of command specified in the UTO. Key leaders receive copies of the PERSITREP as it is transmitted to the next higher echelon of command. For survivability of the reporting process, key personnel are identified to replace the primary recipients in case of operational failure.

2-73. The battalion and brigade S1 use the information provided through FBCB2 to update the deployed personnel database. This database provides commanders the latest information on their soldiers. It also allows the commander to monitor his personnel resources, assess his needs and allocate his resources to maximize combat power. The brigade S1 is responsible for monitoring the status of all personnel within the brigade area and will assign replacements based upon the commander's priority of fill. When replacements arrive they report into the battalion S1 section and then immediately assigned to their unit. Each unit 1SG must assume responsibility or assign responsibility to specific platforms to report personnel not assigned to a specific vehicle with FBCB2. For example, headquarters section personnel not assigned to the 1SG vehicle (unit armorer and unit supply sergeant). 1SG must ensure each member within the unit is accounted by an FBCB2 platform. FBCB2 users at platform level submit duty status changes through their 1SGs. The 1SG conducts

a rollup of the PERSITREP and forwards to battalion S1 who conducts another roll up and forwards it to the brigade S-1. Subsequent PERSITREPs should only reflect changes in duty status from individual platforms or in accordance with standard operating procedures. The 1SG can also initiate a duty status change.

Supply Point and Field Services Status Report

2-74. The supply and field services status report is designed to support the customer with specific information on supply or field service being provided. The supply point and field service report can be used to report on the following: ambulance exchange point (AXP), caches, logistics release points (LRPs), ammunition supply point (ASP), ammunition transfer point (ATP), forward arming and refuel point (FARP), Class I, II, IIIP, IIIB, IV, V, VII, VIII, IX supply points, aviation refuel point, ground refuel point, trailer transfer points (TTPs), water supply point, salvage point, maintenance collection point (MCP), shower, laundry, clothing repair point, and mortuary affairs collection point (MACP). The report can either be broadcast as SA depicting opening/closing times, location, type of supplies or services available, and available quantity of the type of logistics support being provided. Opening and closing times can be established which will aid both the customer and support operations in management of the supply point types. All direct support stock status will be reported via this report. The LOGSITREP will report organic stocks and supply point and field services status report will be used to provide status on direct support stocks of Class I and water, II, IIIP, IIIB, IV, V, VII, VIII, and IX. Management of supply point and field services status report icons is a responsibility of the owning unit and their respective support operations section at both the FSC and FSB.

SITUATIONAL AWARENESS

Overlays

2-75. The FBCB2 operator can gain situational awareness by activating the overlay feature of the FBCB2. The CSS overlay depicts the various CSS assets in the brigade sector. The overlay has icons depicting CSS assets (for example supply points, CSS CP, logistics release points (LRP)). The brigade S4 posts these points to the CSS overlay. Supply points send their locations to the brigade S4 with an information copy to the FSB support operations cell through free text message for posting or updating the CSS overlay. This feature significantly assists supported elements in locating key CSS supply activities during supply point distribution. It also assists the supporting CSS units in locating supported units when conducting unit distribution.

Icons

2-76. The FBCB2 operator can pick up visibility of assets within the brigade. These assets will automatically transmit position reports that will update each FBCB2 screen within his autonomous system. The updates are frequent and will maintain near real-time position awareness. This feature allows significant asset visibility of key CSS assets with FBCB2. CSS synchronization with the supported element will depend heavily on this feature of FBCB2. For example, if an M2A3 Bradley needs recovery, the driver submits a CFS through the platoon sergeant (PSG) and the 1SG. The CFS messaging will task a recovery vehicle (M88) to recover the track. If the M88 is FBCB2 equipped, the LTO message received identifies the platform requesting recovery. During the synchronization process, the M88 will send a free text message to the supported 1SG stating that it will conduct the recovery mission and will coordinate the most appropriate time to conduct the recovery mission. The M88 then identifies and selects the M2A3's icon on the situational awareness map on the screen. The M2A3 can do likewise to observe the supporting M88 as it approaches the M2A3. This feature prevents any confusion in locating the M2A3 and significantly increases the tempo of CSS support on the battlefield.

ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ATCCS)

2-77. The ATCCS integrates five of the seven battlefield operating systems (BOS), maneuver, fire support (FS), air defense (AD), combat service support (CSS), and Intelligence that the DISCOM/DSB/FSB/DASB has the capability to interface with. Each of these functional areas is supported by a control system designed to provide leaders and planners with information to effectively plan, coordinate, control, and direct the battle. These BOS control systems are oriented toward combat operations and provide the commanders and staffs at corps and below with situational information and decision support in executing operational/tactical battle. A brief description of the various ATCCS listed in Figure 2-1 as part of the DISCOM automation architecture is discussed in this section.

MANEUVER CONTROL SYSTEM (MCS)

2-78. The MCS is the maneuver component of ATCCS. It is the primary information system supporting the BN/TF commander and staff. The MCS provides the principal operational interface with necessary applications to access and manipulate the force level database to realize the force level commander concept. There are a wide array of capabilities available, which make planning and executing a battle plan more efficient. Capabilities range from modifying UTOs to creating overlays. Commanders and staffs update the MCS database by entering readiness data, battle plans, and battle plan changes as they occur at each echelon.

2-79. The MCS system consists of window and menu-based software allowing system operators to process, retrieve, store, and send information in textual or graphical form. Reports, operation orders (OPORD), overlays, UTO, and messages are available to the user.

ALL SOURCE ANALYSIS SYSTEM-REMOTE WORKSTATION (ASAS-RWS)

2-80. The ASAS-RWS is a functionally integrated intelligence support system component of ATCCS. It manages sensors and other resources; collects, processes, and fuses intelligence data; stores, manipulates, and displays this data; and quickly disseminates information to the commander by providing situational awareness of enemy activity.

2-81. The ASAS-RWS supports the commander's decision-making process 24 hours a day whether on the battlefield or in rear support areas. It prioritizes and manages collection assets; processes, receives, and correlates data from strategic and tactical sensors and other sources to produce ground battle situation displays. The system then disseminates intelligence information to assist the commander in refining that guidance, aids in target development, and provides recommendations.

COMBAT SERVICE SUPPORT CONTROL SYSTEM (CSSCS)

2-82. The CSSCS is the CSS component of ATCCS. As this is the primary CSS tool used within the DISCOM, it will be discussed below in more detail. The CSSCS provides a concise picture of unit requirements and support capabilities by collecting, processing, and displaying information on key items of supplies, services, and personnel that the commanders deem crucial to the success of an operation. The CSSCS does not duplicate STAMIS functions. The management of all items within a class of supply or support function remains STAMIS functions. Items tracked in CSSCS represent a small portion, but critical, list of the items managed by STAMIS.

2-83. The CSSCS also supports the decision making process with course of action (COA) analysis. Staffs can analyze up to three COAs for a 4-day period. Variables include combat posture, unit task organization, miles traveled, and geographical region.

2-84. The CSSCS maintains a database of unit personnel and equipment authorizations by standard requirement code (SRC) similar to table of organization and equipment (TOE) and unit and equipment planning factors. The CSSCS includes a database of equipment and personnel called a baseline resource item list (BRIL). The items that a commander identifies as critical to the operation can be selected from the BRIL to establish the commander's tracked item list (CTIL).

2-85. The CSSCS currently provides situation awareness of critical elements within supply Classes I, II/IV, III(B), III(P), V, VII, VIII and personnel strength management. Maintenance, transportation, and

medical functionality are a few features to be added as the system matures.

2-86. The commander identifies a CSSCS plans and operations officer who is responsible for developing and coordinating the plan to establish the CSSCS nodes and network. The CSSCS plans and operations officer responsibilities include:

- Ensure that each echelon is resourced and trained properly to operate CSSCS.
- Coordinates acquisition of information to build the CSSCS database.
- Ensures that CSSCS operations are integrated into all OPLANS, OPORDS, and annexes.
- Ensures that TSOPs contain current CSSCS operations.
- Coordinates training and maintenance of CSSCS.

2-87. Some critical steps in establishing the CSSCS network and database are:

- Configure the unit task organization (UTO) IAW the current OPORD.
- Develop data flow diagrams and build message handling tables IAW the diagrams.
- Develop the commander's tracked item list (CTIL).
- Establish status threshold percentages.
- Determine and set support to supported relationships.
- Establish reporting procedures and schedules for the command.
- Establish continuity operations (CONOPS) pairing.

CSSCS DATA COLLECTION

2-88. Units supply status and requirements can be entered manually using standard input forms (screens) at the brigade S4, DSB, DASB, or FSB CSSCS terminal. Electronic interfaces to systems such as FBCB2 will greatly enhance the entry of unit data. The CSSCS tracks unit information down to the company level.

2-89. Battle loss spot reports are input to the CSSCS node at any level (brigade, division, or corps). Information is inputted either manually, as in the case of Class III, or by electronic transfer as when a STAMIS disk is downloaded into the CSSCS terminal. The CSSCS automatically updates the database.

2-90. The data is then distributed to other CSSCS nodes. The primary means of communication is MSE. The CSSCS nodes then compile the data through a series of algorithms that are based on Army planning factors, the specified task organization, and the established support relationships. This way, large quantities of data are presented in comprehensive, but useable, decision support information formats. This information is graphically

portrayed to the commander through green, amber, red, and black bubble charts, situational awareness, subordinate unit locations, and supply point status. Status may be projected out to four days using a combination of planning factors and manually generated estimates. The commander and his staff can further evaluate simplified color status by accessing more detailed numerical data that supports the color status displayed.

2-91. At the brigade level, two CSSCS devices (or nodes) will exist. One is located in the brigade S1/S4 operational facility and the other in the FSB support operations section. In the future CSSCS will be fielded to the maneuver battalions. The brigade node is the point of entry in CSSCS for all organizational level CSS status and requirements of the brigade and its subordinate units. The brigade S1/S4 can also view the status of its supporting FSB/DASB and higher echelon supply points. Through interfaces to the other ATCCS, a CSSCS node provides the brigade S1/S4 with the battlefield common picture.

2-92. The FSB, DASB, and DSB CSSCS node serves as the entry point for some supply point data that is not supported by a STAMIS and all organizational status of their elements. The FSB, DASB, and DSB use CSSCS to:

- Provide common relative picture for CSS.
- Identify CSS commanders logistic posture.
- Enhance C2, decision support, planning, and forecasting.
- Provide CSS status reports for item status, unit status, and supply point status.
- Track and anticipate customer logistics status and requirements.
- Track supply point status, issues, receipts, and dues-in of CTIL items.

UNIT TASK ORGANIZATION

2-93. Currently CSSCS functionality allows any CSSCS node to change the UTO. Therefore, it is critical that UTO changes be controlled. Generally, responsibility for UTO changes within CSSCS should rest with the G4 in coordination with the G3. However, with responsibility and command relationships for CSS units resting with the COSCOM, the corps G4 may request that the COSCOM G4 coordinate and make changes to the CSSCS UTO, with final approving authority resting with the corps G4. Within the Army tactical command and control system (ATCCS), the maneuver control system (MCS) is the system of record for the UTO. Once combat units have been task organized within MCS, CSSCS must task organize CSS units to support the mission. When CSS units have been tasked organized, and the organization

approved by the corps G4, that information is provided to MCS, through the corps G3. The corps G3 is responsible for making changes to the MCS UTO and synchronization of the UTO within MCS.

2-94. The corps G4 is responsible for creating or changing the CSSCS UTO. There are two UTO messages created in CSSCS. The SYNCUTO message contains the complete UTO that is resident in the database where created. When it is posted, it overwrites all UTO data in the posting node. The CSS-022 message is the UTO update message that is created whenever a UTO change is made and saved and the user quits the process. When this message is received and posted to other CSSCS nodes it only writes the changes to the posting node.

2-95. If the UTO gets out of sync with the MCS UTO, reports within each of the systems (MCS and CSSCS) will not be the same, nor will they be easily reconciled. This causes confusion and creates problems for both the force commander and logistics officers, when attempting to answer questions or concerns of the commander.

2-96. Whenever the force echelon status report is calculated by CSSCS, it is based on the sum of all the unit requirements. This is called "roll-up". All CSSCS nodes must therefore use the same UTO. If CSSCS is to report the status for a force echelon, this status must be calculated based on the same underlying data at all nodes. The data for individual units and supply points must be the same, and the units must be rolled-up or summed the same way.

BASELINE RESOURCE ITEMS LIST (BRIL)

2-97. These items are contained in the CSSCS database, and allow commanders to select specific items they want CSSCS to track. However, CSSCS will only track a BRIL item if it is selected to a smaller list called the commander's tracked item list (CTIL). The BRIL is a list of items from the following:

- Class I/Water
- Class II Clothing/Equipment
- Class II Parts
- Class III POL
- Class IV (Under development)
- Class V Ammunition
- Class VI (Under development)
- Class VII Equipment
- Class VIII (Under development)
- Class IX Repair Parts
- Personnel

COMMANDERS TRACKED ITEMS LIST

2-98. The purpose of the CTIL is to list the items that the maneuver commander has determined to be the most critical to the performance of the unit's mission. These provide a view of the CSS situation. The more items that are selected to the CTIL, the more items CSSCS must track in its database. If too many items are selected, the system performance may be noticeably slower. The CSSCS sends, receives, and posts messages that include all of these items. To operate, it must calculate unit status for reports and messages, based on these CTIL items. Conversely, if the item is not selected to the CTIL, CSSCS will not track or report the item.

2-99. Only "global" and "local" CTIL items are tracked at a CSSCS node. Subordinate CTIL items are displayed as information only, and are not tracked by a higher echelon node, so they will not appear on reports for the higher echelon node.

2-100. The CSSCS reports allow several views of CTIL items. One view is "worst to best", and the other view is "alphabetical". However, if the CTIL list is large, it may become cumbersome to display all the items when attempting to brief the commander. For example, if the CTIL is large, 50 items or more, and contains multiple classes of supply, the commander may only be interested in ten (10) items. In this case, it will be necessary for you to assign an "alias" to the CTIL item. The alias can be formed by adding the numeral "1 through 10", or "a through j" in front of the CTIL nomenclature. This will cause those items to be displayed in order on the CSSCS item reports.

2-101. The CSSCS is designed as a C2 system to provide commanders with analysis and decision making capability. It will receive data feeds from the logistics STAMIS or the global combat service support-Army (GCSS-Army) system, SIDPERS (personnel), FBCB2, and TAMMIS (medical), to provide CTIL tracking and status updates.

INPUTS

2-102. The CSSCS provides for data input through electronic message, magnetic media, and manual input on CSSCS unit and supply point input forms through the CSSCS keyboard. Electronic data transfer is the routine means by which CSSCS users will receive resource data, however, in those instances where STAMIS data exchange may not be available, i.e., no STAMIS interface exists, the STAMIS device is inoperable, or when operational requirements dictate, manual data entry will be required.

- Class I and water. There is no CSSCS-STAMIS interface for Class I and water. These items are tracked at unit and supply point by manual input into CSSCS.
- Class II. The CSSCS divides and tracks Class II items as Class II clothing and equipment and Class II parts. The CSSCS receives Class II clothing and equipment data from the standard property book system-redesign (SPBS-R). It tracks this information at the unit level only. The CSSCS

receives Class II parts information from the standard army retail supply system (SARSS), and tracks this information at the supply activity level only.

- Class III. The CSSCS divides and tracks Class III items as Class III (Bulk) and Class III (Packaged). There is no CSSCS-STAMIS interface for Class III Bulk. These items are tracked at unit and supply point by manual input into CSSCS. The CSSCS receives Class III Packaged information from SARSS and tracks this information at the supply activity level only.
- Class IV. Class IV is not currently tracked within CSSCS.
- Class V. The CSSCS receives Class V information from the standard Army ammunition system (SAAS). Class V is tracked by CSSCS at unit, ammunition transfer point (ATP), ammunition supply point (ASP), corps storage areas (CSA), and theater storage area (TSA).
- Class VI. Class VI is not currently tracked within CSSCS.
- Class VII. The CSSCS receives Class VII data from SPBS-R, and tracks this information at the unit level only. Class VII maintenance information is received from the standard Army maintenance system (SAMS).
- Class VIII. Class VIII is not currently tracked within CSSCS.
- Class IX. The CSSCS receives Class IX information from SARSS, and tracks this information at the supply activity level only.
- Personnel. The CSSCS receives personnel information from the standard installation/division personnel system (SIDPERS). The CSSCS tracks this information within the categories: personnel strength report, personnel daily summary, personnel supported summary, personnel projected gains, force echelon report, and critical military occupational specialty (MOS) report. At the current time the personnel function within CSSCS is undergoing minor revisions to include social security number level of detail.
- Battle Loss. The CSSCS produces battle loss reports that list reported CTIL item losses by unit or supply point. It displays losses by class of supply in six-hour increments, for losses that were reported before the established report cutoff date and time. This is a manual report.

DATABASE RELATIONSHIP

2-103. Although asset data is collected in CSSCS by individual resource category, e.g. classes of supply and personnel, these resource categories do not stand alone in the CSSCS database. There is a database relationship that exists between certain classes of supply and personnel and must be a consideration in establishing and maintaining an accurate CSSCS database.

- Personnel to Class I and water. Since Class I and water status is calculated based on consumption factors, such as the

individual daily feeding rate, it is necessary that an accurate personnel count exist in CSSCS before the system can determine Class I and water status.

- Class VII to Class V and Class III (B). This same type of relationship exists between Class VII (equipment), Class V (ammunition), and Class III Bulk (fuel). The CSSCS cannot accurately calculate unit fuel and ammunition requirements unless the equipment, e.g., tanks, trucks, aircraft, etc., being utilized, have been entered into the database. Obviously, it would be impossible for the system to tell you what your expected daily requirement for fuel and ammunition would be if the equipment does not exist in the database. Nor, could the CSSCS calculate what your fuel and ammunition consumption rates would be, as once again, the equipment intended to consume the fuel and ammunition does not exist in the database. Thus, it is necessary to enter and establish your Class VII database prior to establishing your Class V and Class III Bulk database.
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REPORTS

2-104. As discussed in data collection and inputs, for almost every CSSCS input, there is a corresponding report. Simply put, inputs to CSSCS, either manually through use of unit and supply point input forms, through an interface with a STAMIS, or received from other CSSCS nodes, reflect the raw numbers entered into the CSSCS database. The CSSCS uses this raw data to calculate outputs in the form of reports. Calculations within CSSCS are driven by a series of predefined logistical algorithms. These algorithms are unique to the individual resource tracked by CSSCS and include considerations such as current on-hand quantities, authorized quantities, daily requirements, consumption/usage/attrition factors, and battle losses.

2-105. After any new asset data is input to the CSSCS, the CSSCS must then recalculate these numbers to determine and identify the new current and projected unit strength, or status as it is referred to in CSSCS operations.

2-106. The CSSCS creates reports by "rolling up" unit and supply point data by force echelon and displaying in on a single report. A force echelon is defined as a brigade element or higher, i.e., division, or corps.

2-107. Reports are available for the classes of supply and personnel previously identified under data collection.

2-108. When reviewing CSSCS reports there are two important things to understand:

- Status (reflected as gumballs color coded as either green, amber, red, or black), is calculated based on requirements. In current operations, CSSCS does not take combat posture or

intensity into account when determining status or consumption rates. The capability to reflect combat posture in current operations is provided for information only. Only in the course of action analysis (logistics planning) process are these postures taken into account for affecting consumption rates.

- Subordinate units are identified to CSSCS by the CSSCS UTO only, and not by any other doctrinal UTO or garrison UTO. When units are attached, detached, OPCON, etc. in the CSSCS UTO, this dictates who is subordinate to whom. When collecting and compiling reports, CSSCS looks to the CSSCS UTO to identify who is the senior element and who are the subordinate units. If the CSSCS UTO has been changed erroneously, or a unit is misplaced in the CSSCS UTO, this will affect the force echelon's status.

2-109. Corps reports are complied by collecting all subordinate unit data, which includes division, and below.

COURSE OF ACTION ANALYSIS (COA)

2-110. The CSSCS has a requirement to provide a force level logistics planning capability to evaluate the supportability and sustainability of proposed mission courses of action. This capability is identified as course of action analysis (COA) in CSSCS and has been partially implemented. New releases of CSSCS software should be checked for improvements and fixes to COA. Users should check the validity of COA results before using them for planning.

2-111. The COA function relies on the current data in the system's operational database and the application of user defined factors and parameters to conduct its analysis. COA analysis utilizes approved attrition factors, consumption rates, and user-defined parameters, such as task organization, geographical area, combat posture and intensity, and distances to be traveled. Three COAs for a five-day period can be simultaneously assessed and compared.

2-112. The COA function produces two primary system reports to assist the decision support process. They are the COA analysis report and COA comparison report.

2-113. The COA analysis report lets you conduct an analysis for each day of the 5-day period to evaluate the projected status of Class III, V, and VII assets, and an overall daily status. The report also shows a readiness color code and a commander's evaluation for each day of the analysis. You can peel back selected fields of the report to obtain more detailed information to assist you in deciding whether to accept the system's evaluation or change the commander's evaluation.

2-114. The COA comparison report captures the data presented in the analysis reports for up to three COAs and presents them in a comparative format. As with the analysis report, you can peel back

selected fields to get more information and change the commander's evaluation.

CSSCS INTERFACES

2-115. All CSSCS nodes will be able to interface with all other CSSCS devices and are also able to interface with other ATCCS. The CSSCS may connect to FBCB2 via LAN at the brigade S1/S4 level. The FBCB2 will serve as a data source for CSSCS by passing aggregate data (LOGSITREP and PERSITREP) that has been rolled up from squad/section, platoon, and company. The LOGSITREP includes roll-ups of Classes I, III(P), III(B), IV, V, VII, and VIII. Class VII data also includes non-mission capable information. The CSSCS consolidates battalion data selected by the commander on the CTIL. The CSSCS reports to higher HQ and then provides lower echelons the location of supply points via FBCB2. The FBCB2 transmits personnel strength information by officer/warrant officer/enlisted through the PERSITREP. This information is rolled up from platform through battalion to brigade S1 where it may be entered directly into CSSCS. The CSSCS uses this information to update its database on those personnel categories listed on the CTIL. The CSSCS updates supply point locations whenever supply points move in an electronic map overlay format and passes it down to platform level via FBCB2.

2-116. Figure 2-3 depicts the CSSCS to BFA interfaces, and identifies the type of messages that are exchanged between these systems.

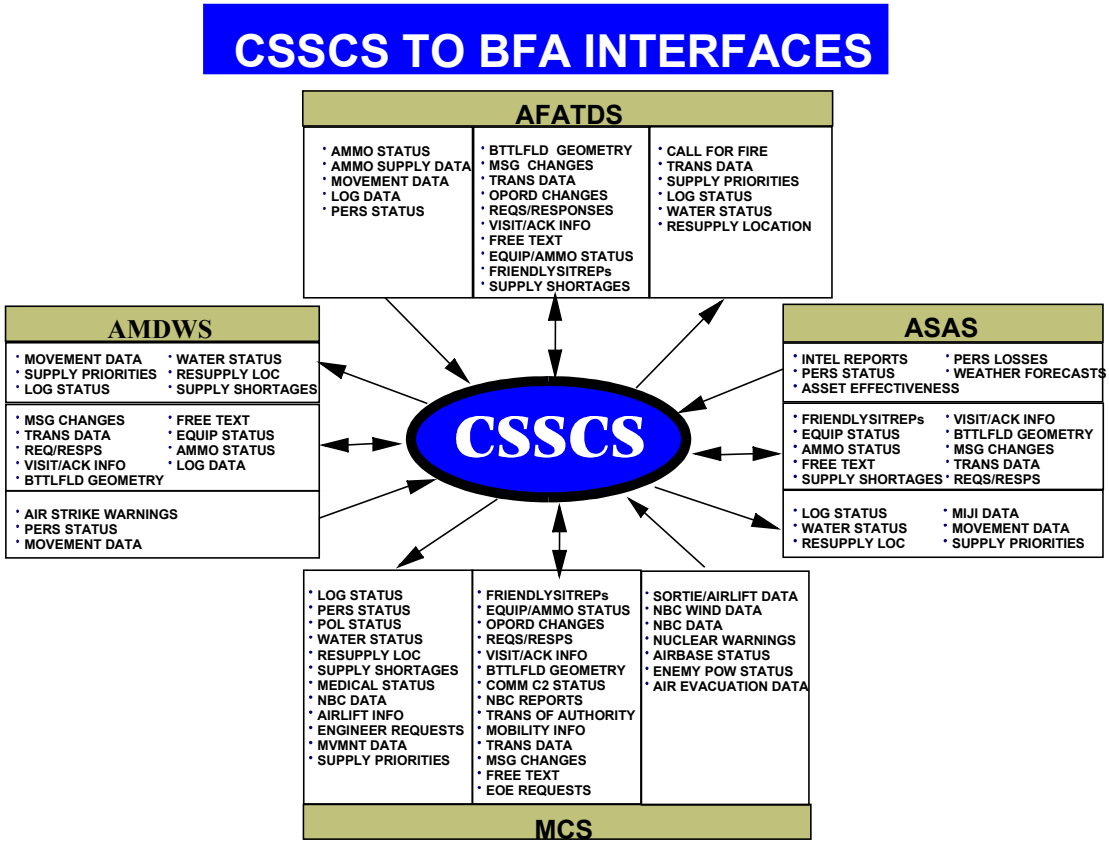

Figure 2-3. CSSCS Interfaces with Battlefield Functional Area (BFA) Systems.

2-117. Figure 2-4 depicts current CSSCS to STAMIS interfaces, and identifies the data elements that are exchanged between CSSCS and the STAMIS. Work is currently progressing on the development of the global combat service support-Army (GCSS-Army) system. This will be the single system that will integrate and replace the current separate logistics STAMIS, with the exception of SIDPERS and TAMMIS.

CSSCS to STAMIS Interfaces

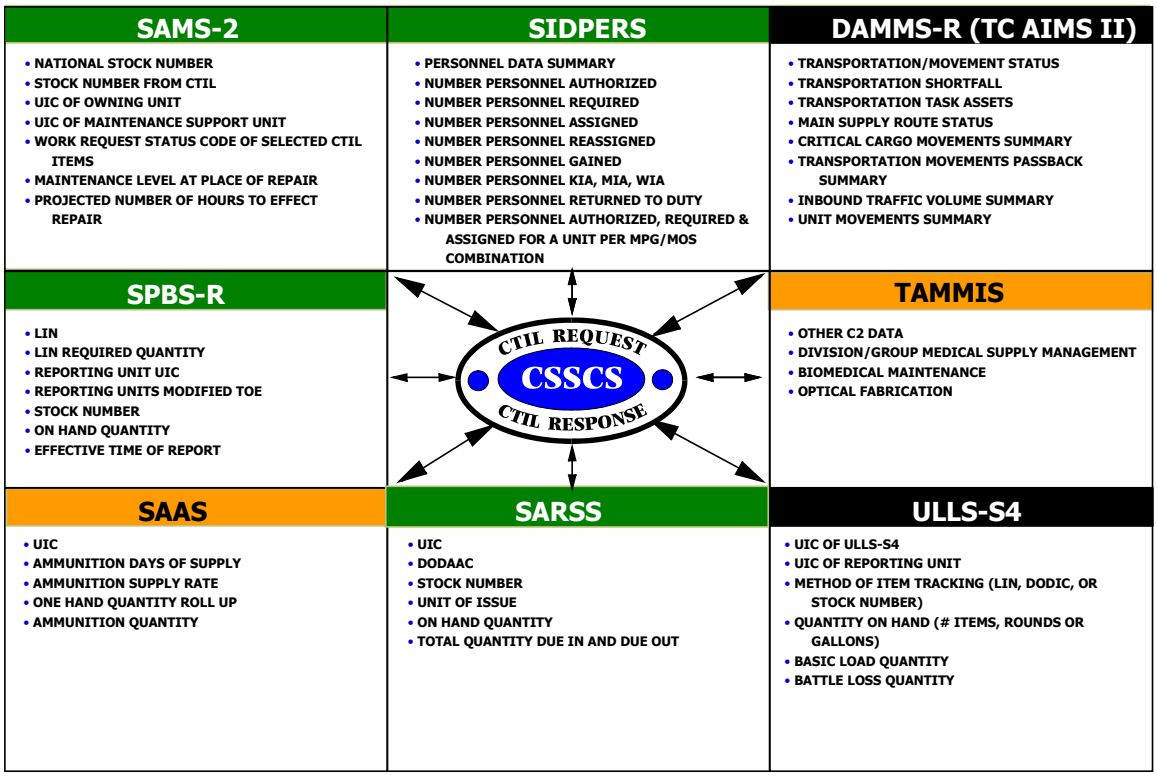

Figure 2-4. CSSCS to STAMIS Interfaces.